

NEW POLYCHAETOUS ANNELIDS OF THE
FAMILIES NEREIDIDAE, HESIONIDAE, AND
NEPHTYIDAE FROM THE SANTA MARIA BASIN,
CALIFORNIA, WITH A REDESCRIPTION OF
GLYCERA NANA JOHNSON, 1901

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Abstract.—Four new species of polychaetes belonging to the Nereididae, Hesionidae, and Nephtyidae are described from the Santa Maria Basin off central California, and *Glycera nana* is redescribed based on new material from the same area. The specimens are part of the collections from the California Outer Continental Shelf Monitoring Program that was conducted between 1983 and 1990 for the United States Minerals Management Service. The newly described species are *Nereis ligulata*, *Gyptis plurisetis*, *Podarkeopsis perkinsi*, and *Nephtys signifera*.

As part of the California Outer Continental Shelf Monitoring Program performed for the United States Minerals Management Service (MMS) between 1983 and 1990, a rich and highly diverse polychaete fauna was encountered in the Santa Maria Basin in substrata ranging from rocks to fine mud in depths between 50 and 950 m. Although the benthic fauna of California is relatively well known, approximately 25 percent of these polychaete species were found to represent undescribed species. In this paper, four new species are described that belong to the families Nereididae, Hesionidae, and Nephtyidae. Types are deposited at the National Museum of Natural History, Smithsonian Institution (USNM), the Allan Hancock Foundation Polychaete Collection of the Los Angeles County Museum of Natural History (LACM-AHF), and the Santa Barbara Museum of Natural History (SBMNH).

Systematic Account

Family Nereididae Johnston, 1845
Genus *Nereis* Linné, 1758

Nereis ligulata, new species

Fig. 1

Nereis nr. *anoculis* Lissner et al., 1986:D-10.

Material examined.—California: Santa Maria Basin, off Port San Luis, Sta. 27, 35°04.30'N, 121°19.27'W, 611 m: holotype (USNM 148701). *Nereis anoculis* Hartman, 1960: holotype (LACM-AHF POLY 000834). *Nereis anoculopsis* Fauchald, 1970: holotype (LACM-AHF POLY 001057).

Description.—Holotype incomplete, in 6 parts; total length 121 mm, width 2.5 mm without parapodia in anterior segments, segments about 190, only last few segments and pygidium absent. Body slender, gradually narrowing toward posterior end behind pharyngeal region, appearing ragged because of elongate parapodia. Color in alcohol uniformly tan; integument wrinkled in anterior segments.

Prostomium longer than wide, roughly hexagonal, with slender, filiform antennae and palps extending anteriorly to about same level, with short conical styles and massive, long palpophores; eyes absent (Fig. 1A).

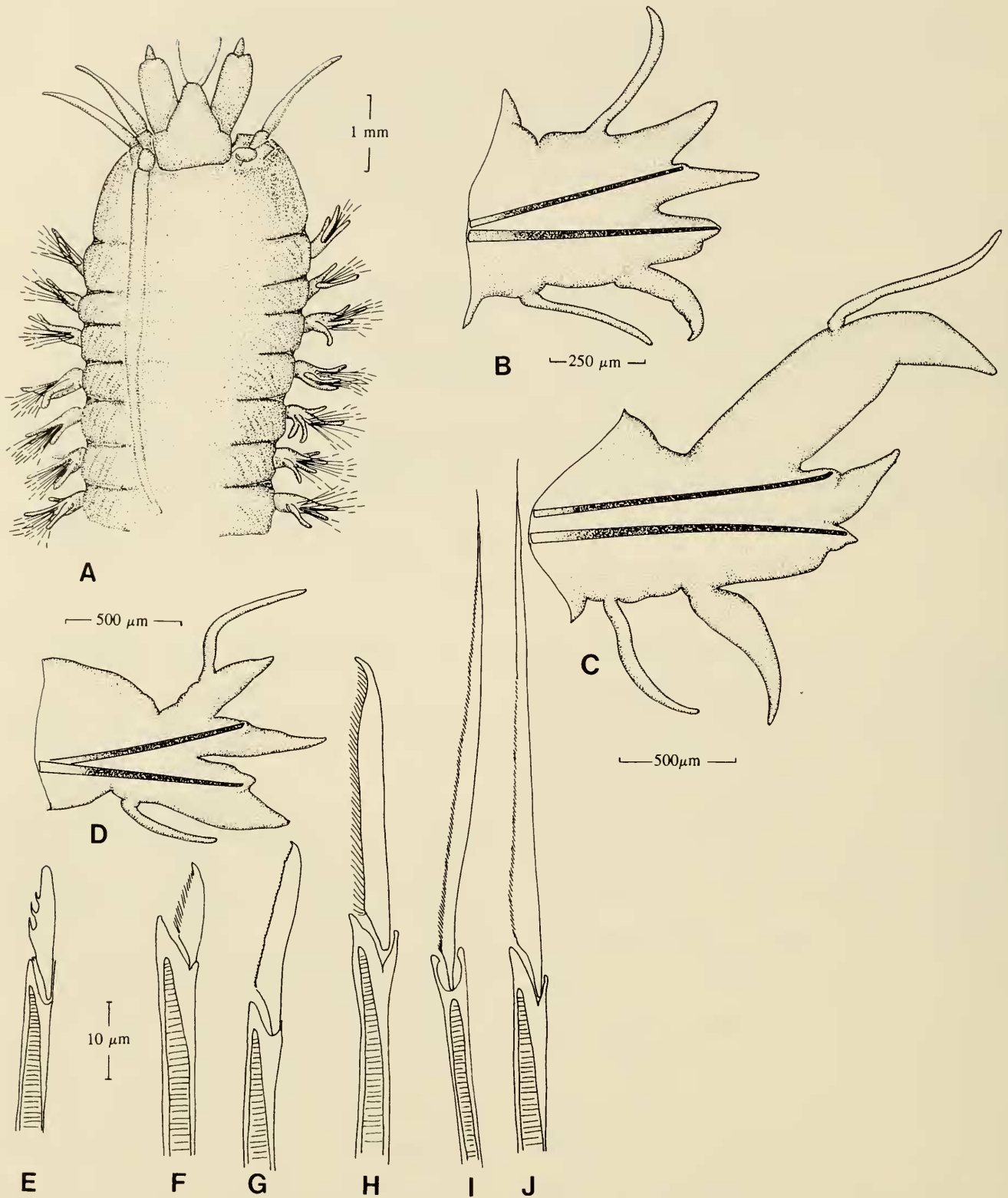


Fig. 1. *Nereis ligulata*: A, anterior end, dorsal view; B–D, anterior, middle, and posterior parapodium, anterior view; E, notopodial homogomph falciger; F, supracicular neuroseta, anterior parapodium; G, same, far posterior parapodium; H, subacicular neuroseta, anterior parapodium; I, neuropodial homogomph spiniger; J, neuropodial heterogomph spiniger (all from holotype).

Proboscis with light brown jaws, each with 15 to 16 pointed teeth; paragnath pattern: Area I: none; II: 5 to 8 in cluster; III: 5 in 1 irregular row; IV: 6 to 7 in arc (largest

paragnaths of entire proboscis); V: none; VI: 2 to 3 in row or triangle; VII and VIII: 3 in widely spaced row.

Peristomium about as long as prostomi-

um, 3 times as wide; with 4 pairs tentacular cirri, about as long as peristomium except for second dorsal tentacular cirrus, which reaches back to setiger 6 or 7. Parapodia uniramous in first 2 setigers, biramous thereafter; notopodia with dorsal cirri arising from base of upper ligule in anterior-most segments (Fig. 1B), arising from middle and subdistal positions in mid-body and posterior segments (Fig. 1C–D); upper notopodial ligule pointed, about as long as lower notopodial ligule in first 20 segments (Fig. 1B); in subsequent segments ligule greatly increasing in length (Fig. 1C), with tip becoming glandular. Neuropodia with small acicular lobe and slender, foliaceous lower ligule inserting between ventral cirrus and tip of acicular lobe in anterior and middle setigers, fused to acicular lobe in posterior setigers (Fig. 1D); ventral cirri slender, about as long as dorsal cirri.

Notosetae slender homogomph spinigers from setiger 3 through about 28; homogomph falcigers first appearing in setiger 25, present throughout remaining segments, in posteriormost setigers embedded alongside acicula; blades short, with 3 coarse teeth (Fig. 1E). Upper fascicles of neurosetae with slender homogomph spinigers and, from setiger 16 onward, 1 or 2 heterogomph falcigers; lower fascicles with heterogomph spinigers, from setiger 16 or 17 also with about 5 to 7 heterogomph falcigers; the latter occurring singly in posterior segments and absent in about last 20 segments. All spinigers with finely serrated blades; neuropodial falcigers with blades of varying lengths, in anterior and middle segments with long serrations and distally forming blunt hook; in far posterior segments finely serrated, distally curved and ending in fine point (Fig. 1F–J).

Remarks.—*Nereis ligulata* belongs to a small group of deep-sea species characterized by greatly elongate notopodia with foliaceous upper ligules in posterior segments (Fauchald 1972, Blake 1985, Blake & Hilbig 1990). Within this group, *N. ligulata* most

closely resembles *Nereis anoculis* Hartman, 1960, from other deep basins of southern California; the two species differ in the number of teeth on the jaws (7 for *N. anoculis*, 15–16 for *N. ligulata*), the distribution of notopodial spinigers and falcigers (never co-occurring in *N. anoculis*, both present in a few segments in *N. ligulata*), the occurrence of neuropodial falcigers (only in the lower fascicle in *N. anoculis*, both in the upper and lower fascicles in *N. ligulata*), and the number of teeth on the blades of the notopodial falcigers (5 for *N. anoculis*, 3 for *N. ligulata*). Two other species within this group described by Fauchald (1972) from adjacent areas off Mexico, *Nereis angelensis* and *Nereis fossae*, have much greater numbers of paragnaths (38 in areas VII/VIII for *N. angelensis*, 3 for *N. ligulata*; about 20 each in areas III and IV for *N. fossae*, 5–7 for *N. ligulata*). In addition, both *N. fossae* and *N. angelensis* possess eyes, whereas all other species in this group, including *N. ligulata*, are characterized by the absence of eyes. A synopsis of these morphological differences, along with corresponding characteristics of the remaining species belonging to the deep-sea group, is presented in Table 1.

Etymology.—The species name refers to the elongate upper notopodial ligule.

Distribution.—Known only from the type locality, in mixed sand and silt/clay. An additional specimen was found off the Farallon Islands in 995 m depth, but the small size of that individual precluded a definite identification.

Family Hesionidae Sars, 1862

Genus *Gyptis* Marion & Bobretzki, 1875

Diagnosis.—Prostomium with 2 or 3 antennae, median one, if present, attached in central or posterior position; 2 biarticulate palps and usually 2 pairs of lenticular eyes present. Proboscis thin-walled, wide and short when fully extended, with numerous, crowded terminal papillae (“fimbriae” sen-

Table 1.—Morphological features distinguishing deep-sea *Nereis* with elongated upper notopodial ligule (modified after Blake 1985).

Species	Eyes	Jaws No. teeth	Paragnaths								Blades of homomorph falciigers	Reference
			I	II	III	IV	V	VI	VII	VIII		
<i>angelensis</i>	4	0*	2	11	11 large	12	0	3	{38}	short, smooth	Fauchald 1972	
<i>anoculis</i>	0	7	1-3 tandem	4 large	4	5-6 large	0	2-3	{4}	5 teeth	Hartman 1960	
<i>anoculopsis</i>	0	5-6	2	2	0	4	0	1 small	{2}	short, 5 teeth	Fauchald 1972	
<i>fossae</i>	4	7-8	2	11-13	22	18-20	0	3	{7}	short, smooth	Fauchald 1972	
<i>ligulata</i>	0	15-16	tandem	5-8	5	6-7 large	0	2-3	{3}	3 teeth	This paper	
<i>piscesae</i>	0	7-8	2	ca. 12	21-22	19-20	0	4-6	4	6-8 blunt teeth	Blake & Hilbig 1990	
<i>profundi</i>	0	5	6	14	25	27	2	{few in single row}		long, weakly denticulate	Kirkegaard 1956	
<i>sandersi</i>	0	10-12	4-6	ca. 30 small	85-100 in dense field		0	4-5 large	1-2 large 3-4 small	short, weakly denticulate	Blake 1985	

* Jaws described as "smooth to crenulate."

su Hartman 1968) in up to 4 rows. Eight pairs tentacular cirri arising from 1 or 2 visible segments, smooth to distinctly articulated. Parapodia subbiramous in setiger 1 in some species, biramous from setiger 2 (or 1 in some species). Notosetae numerous, including 1 or more kinds of capillaries and often 1 or 2 acicular spines per fascicle. Neurosetae numerous compound falcigers with long to short blades. Simple setae and shafts of compound setae usually cross-striated.

Remarks.—A generic definition of *Gyptis* is provided here because of considerable confusion in the literature. Hessle (1925) established *Amphidromus*, which was determined by Hartman (1959) to be preoccupied and was renamed *Amphiduros*. One of the diagnostic characters of *Amphiduros* is the smooth anterior margin of the proboscis. However, the generic concept shifted when Hartman (1968) introduced the term "fimbriae" to describe crowded, slender proboscideal papillae which she thought were diagnostic of *Amphiduros*. *Gyptis* was characterized by 10 or 12 widely spaced, more globular papillae. Perkins (1984) resolved the resulting confusion by transferring a number of species assigned to *Gyptis* (sensu Hartman) to the genus *Podarkeopsis* Laubier, 1961. The genera *Amphiduros*, *Gyptis*, and *Podarkeopsis* are thus defined as follows: *Amphiduros* includes species with an unapillated proboscis, as stated originally by Hessle (1925); *Gyptis* includes species with a thin-walled proboscis bearing numerous slender papillae arranged in up to four rows along the anterior margin; and *Podarkeopsis* includes species with a thick, muscular proboscis bearing ten widely spaced papillae.

Gyptis plurisetis, new species

Fig. 2

Hesionidae sp. A Lissner et al., 1986:D-9. — Hyland & Neff, 1988:A-2. — Hyland et al., 1990:F-1.

Amphiduros sp. A Uebelacker, 1984:28-34, figs. 28-30.

Material examined.—California: Santa Maria Basin, Sta. R-1, 35°05.83'N, 120°49.16'W, 91 m: 1 paratype (USNM 148702); Gulf of Mexico, southern Florida, 25°45.70'N, 83°11.07'W, 54 m: holotype (USNM 75314) and 1 paratype (USNM 75315); off Texas, 27°24'N, 96°29'W, 98 m: 1 paratype (USNM 75212).

Description.—Only anterior ends present, length to 2 mm width to 1.3 mm, 5 to 8 setigers. Color in alcohol uniformly tan.

Prostomium oval to pentagonal, distinctly wider than long, with 2 long palps and 3 antennae, the median antenna located just anterior to eyes and about half as long as lateral antennae. Two pairs of large, subequal, round eyes, anterior pair further apart than posterior pair. Nuchal organs developed as crescentic, ciliated grooves along postectal margin of prostomium. Proboscis cylindrical, with numerous deciduous distal papillae (Fig. 2A, B).

Eight pairs of tentacular cirri present on 1 or 2 visible segments, most with styles broken off, remaining ones smooth to indistinctly articulated. Parapodia subbiramous in setiger 1, biramous from setiger 2. Notosetae of four kinds: (1) short, blunt acicular spines, 2 per fascicle (Fig. 2C); (2) long, coarsely serrated capillaries, about as thick as spines, 5 per fascicle; (3) finely serrated capillaries, as long as coarsely serrated ones, but slightly thinner, about 5 per fascicle; and (4) 1 or 2 very thin, smooth capillaries of about same length as spines (Fig. 2D–F). Neurosetae compound falcigers, with long, very delicate, finely serrated blades and smooth shafts. Length/width ratios of blades ranging from 4:1 to 6:1. All notosetae and shafts of neurosetae cross-striated.

Remarks.—*Gyptis plurisetis* was described as *Amphiduros* sp. A by Uebelacker (1984), but is here assigned to the genus *Gyptis* after a reassessment of the generic definitions. *Gyptis plurisetis* resembles most closely *Gyptis vittata* Webster & Benedict, 1887 in the presence of several different types of notosetae (Uebelacker 1984). How-

ever, the two species clearly differ in the following characters: lateral antennae and palps are slender and of similar length in *G. plurisetis*, but stout in *G. vittata*, with the antennae clearly longer than the palps; the first parapodia are subbiramous in *G. plurisetis*, but biramous in *G. vittata*; and the notosetae include smooth spines and three types of capillary setae in *G. plurisetis*, but two kinds of serrated spines, fine-tipped serrated setae, and serrated capillary setae in *G. vittata*. In addition, the proboscis of *G. plurisetis* bears numerous slender papillae, whereas *G. vittata* has a proboscis with 10 papillae and may belong to *Podarkeopsis* although forked notosetae are absent.

Habitat.—The species occurs in low densities in silty clay and coarse to fine sands.

Etymology.—The species name is derived from *plus* (Latin for many), and *seta* to reflect the numerous types of notosetae.

Distribution.—Gulf of Mexico: Florida to Texas; central California; 40 to 100 m.

Genus *Podarkeopsis* Laubier, 1961

Diagnosis.—Prostomium with 3 antennae, with median one attached in frontal position; with 2 biarticulate palps and 2 pairs of lenticular eyes. Proboscis cylindrical, with thick muscular layer and 10 terminal papillae that may alternate with tufts of cilia. Eight pairs tentacular cirri arising from 3 visible segments, smooth to distinctly articulated. Parapodia subbiramous in setigers 1 to maximally 4, biramous thereafter. Notosetae few, including furcate setae, acicular spines and occasionally some capillaries, smooth or serrated, with or without cross-striations. Neurosetae numerous compound falcigers.

Remarks.—This genus was established by Laubier (1961) to accommodate a species that resembles *Podarke* in having furcate notosetae, but possesses eight rather than six pairs of tentacular cirri. In subsequent years, the presence of furcate setae was not considered a generic level character, but rather a species character, and the status of

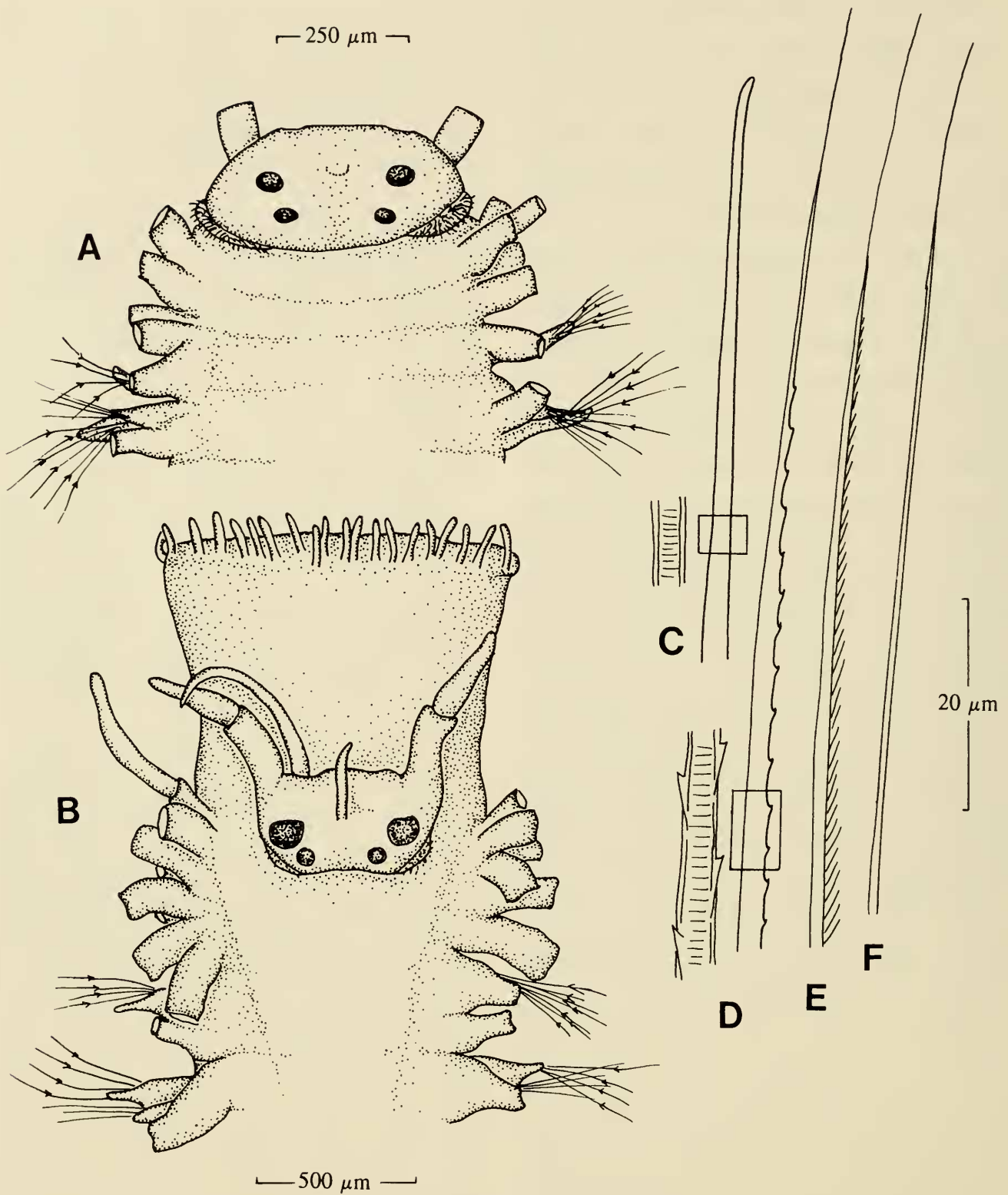


Fig. 2. *Gyptis plurisetis*: A, anterior end, dorsal view; B, same, specimen from the Gulf of Mexico (after Uebelacker 1984); C, notopodial spine with detail of cross-striation; D, coarsely serrated capillary with detail of cross-striation and serrations; E, finely serrated capillary; F, smooth capillary (A, C–F from paratype USNM 148702).

Podarkeopsis was unclear. Perkins (1984), however, reestablished the genus and referred a number of *Gyptis* species with furcate setae to *Podarkeopsis*. The genus now

includes a well-defined group of species with eight pairs of tentacular cirri. *Podarkeopsis brevipalpa*, formerly a "catch-all species" for specimens with furcate notosetae and 8

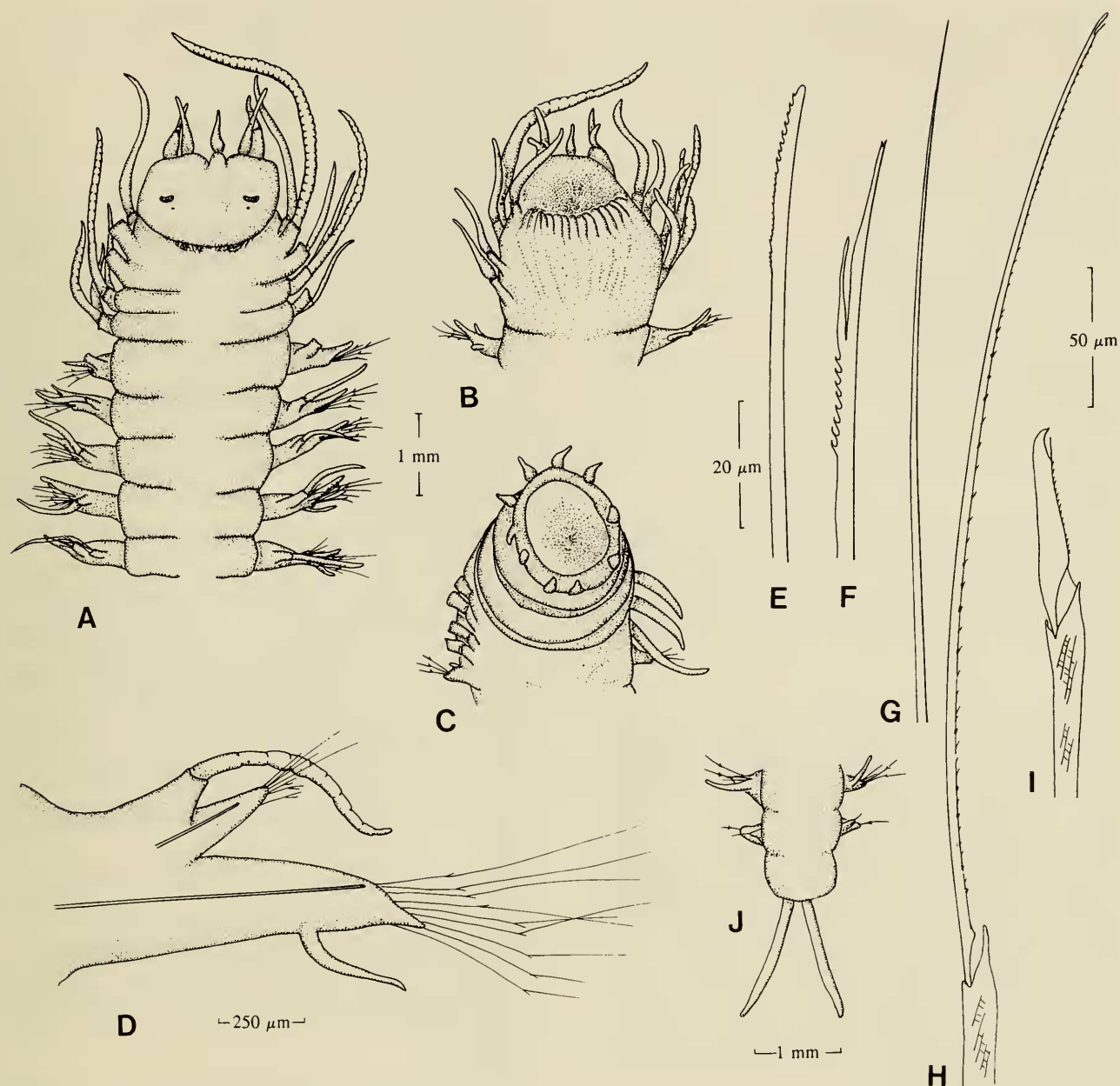


Fig. 3. *Podarkeopsis perkinsi*: A, anterior end, dorsal view; B, same, ventral view; C, proboscis, anteroventral view; D, parapodium; E, notopodial spine; F, furcate notoseta; G, capillary notoseta; H, long-bladed neuroseta; I, short-bladed neuroseta; J, posterior end, dorsal view (all from paratype USNM 148705).

pairs of tentacular cirri (as *Gyptis brevivalpa*) appears to be restricted to intertidal and shallow subtidal depths and was not found in the California material available to this author, but may co-occur with the relatively common *Podarkeopsis glabra* (Hartman, 1961). *Podarkeopsis brevivalpa* was originally described from El Salvador (Hartmann-Schröder 1959) and has been reported from Oregon and Washington (confirmed by the author).

Podarkeopsis perkinsi, new species

Fig. 3

Podarkeopsis sp. A Lissner et al., 1986: D-9.

Podarkeopsis sp. B Lissner et al., 1986: D-9.—Hyland & Neff, 1988: A-2.—Hyland et al., 1990: F-1.

Material examined.—California: Santa Maria Basin, Sta. R-6, 34°41.40'N, 120°57.90'W, 410 m: holotype (USNM

148703), Sta. 26, 35°04.38'N, 121°15.99'W, 590 m: 1 paratype (USNM 148704), Sta. 28, 35°04.22'N, 121°19.65'W, 603 m: 1 paratype (USNM 148705), Sta. 61, 34°33.01'N, 120°48.89'W, 345 m: 1 paratype (LACM-AHF POLY 1617), Sta. 76, 34°25.59'N, 120°40.98'W, 387 m: 1 paratype (LACM-AHF POLY 1618), Sta. R-3, 35°05.30'N, 121°00.90'W, 409 m: 2 paratypes (SBMNH 35619), Sta. R-9, 34°53.68'N, 120°59.12'W, 410 m: 1 paratype (SBMNH 35620). Off Farallon Islands, Sta. 3-3, 37°27.25'N, 123°07.66'W, 800 m (1), Sta. 4-7, 37°13.47'N, 123°07.48'W, 1020 m (1).

Description.—Length to 18 mm, width to 2 mm, segments to 51. Body slender, widest in pharyngeal region, gradually tapering toward pygidium. Color in alcohol uniformly tan.

Prostomium pentagonal, with 3 antennae, 2 palps, and 2 pairs of eyes (occasionally faded in alcohol), anterior pair as far apart as posterior pair, moderately large, kidney-shaped; posterior pair minute rounded spots. Lateral antennae about as long as palps, median antenna about half as long; palps directed toward ventrum. Two heavily ciliated nuchal organs along postectal margins of prostomium (Fig. 3A). Proboscis with 10 large terminal papillae (Fig. 3C) and ciliary band.

Eight pairs of tentacular cirri on 3 visible segments; first 4 pairs on segment 1, dorsal cirri of first pair longest, all ventral tentacular cirri considerably shorter than corresponding dorsal ones (Fig. 3A, B). Parapodia subbiramous in setigers 1 to 3, biramous thereafter; notopodia about half as long as neuropodia, with conical presetal lobe; dorsal cirri extending to tip of neuropodium, indistinctly articulated or wrinkled, attached to wide cirrophore. Neuro-podia with long, conical presetal lobe; ventral cirri short, slender, smooth, inserted subdistally (Fig. 3D).

Notosetae first present in setiger 4; including up to 6 furcate setae in dorsalmost

position, up to 14 finely serrated, very slender capillaries in middle position, and up to 6 distally coarsely serrated spines in ventralmost position; ventralmost setae in juveniles appearing as cultriform setae with flattened and serrated tip (Fig. 3E–G). Neurosetae compound, arranged in two groups: dorsal fascicle of numerous, very long-bladed and slender falcigers and ventral fascicle of few short-bladed falcigers (Fig. 3H, I).

Pygidium small, surrounding terminal anus, with 2 slender ventrally inserted anal cirri (Fig. 3J).

Remarks.—*Podarkeopsis perkinsi* is easily recognized by the occurrence of the first notopodia in setiger 4 (rather than 5 as is typical for the genus) and the setal morphology. The serrations on the notopodial spines and the extremely long-bladed upper neurosetae are diagnostic for this species. *Podarkeopsis perkinsi* differs from *P. glabra* most obviously by the presence of capillary setae in the notopodial fascicle and the occurrence of notosetae from setiger 4 rather than 5.

Habitat.—The species is found in silt and sand on the upper and middle slope.

Etymology.—This species is named after Tom Perkins in recognition of his valuable contributions to the systematics of the Hesionidae.

Distribution.—Known only from off central California, 385 to 1020 m.

Family Glyceridae Grube, 1850

Genus *Glycera* Savigny, 1818

Glycera nana Johnson, 1901

Fig. 4

Glycera nana Johnson, 1901:411, pl. 10, figs. 103, 103a.

Glycera capitata Hartman, 1950:76, pl. 11, figs. 1–4 (in part); 1968:617 (in part).—Hyland & Neff, 1988:A-2.—Hyland et al., 1990:F-1.—*Not* Oersted, 1843.

Material examined.—Holotype: Puget Sound (MZC 1878). California: Santa Maria Basin, Sta. PJ-1, 34°55.79'N,

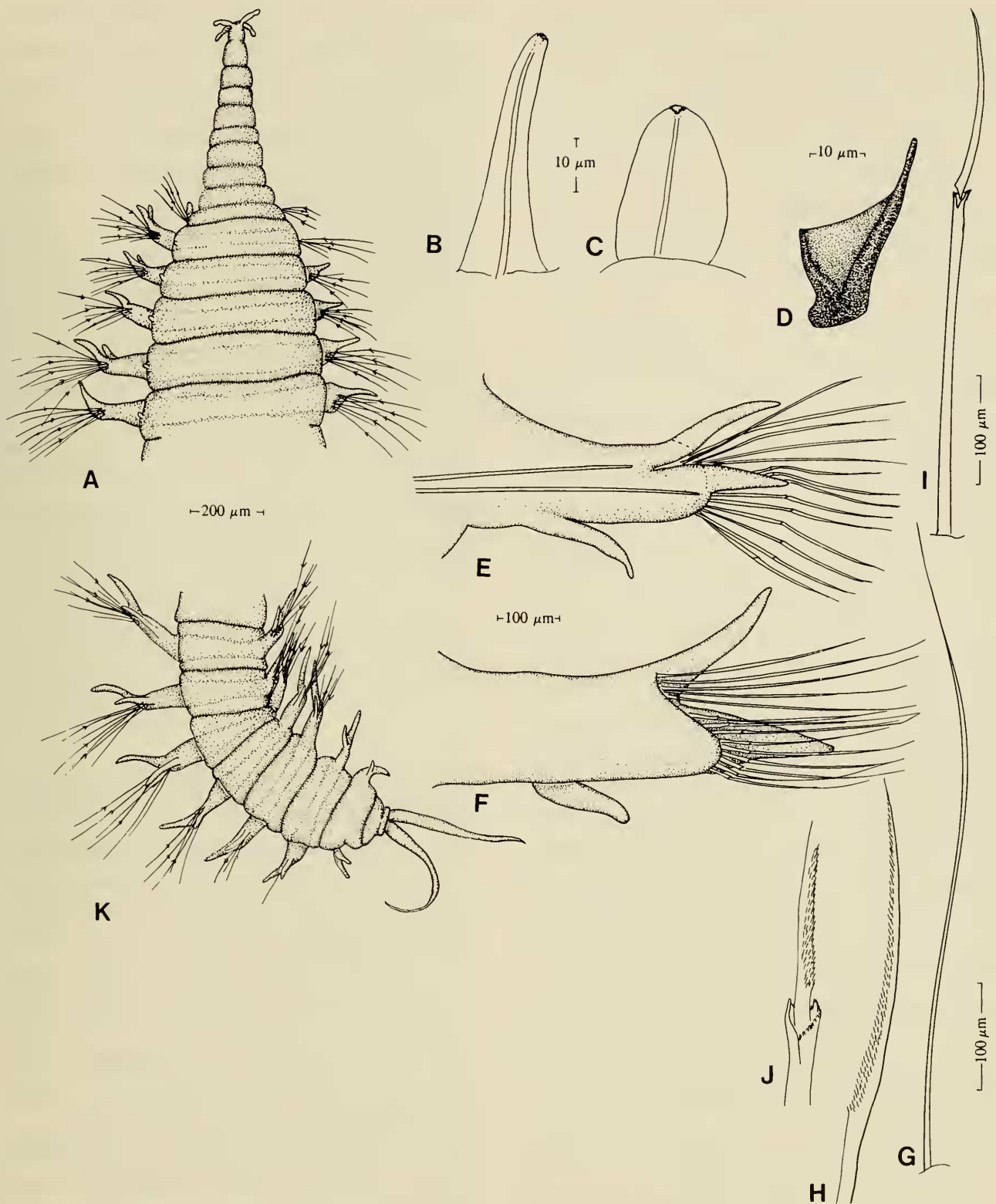


Fig. 4. *Glycera nana*: A, anterior end, dorsal view; B–C, proboscideal organs; D, aileron; E, middle parapodium, anterior view; F, same, posterior view; G, notoseta; H, tip of notoseta; I, neuroseta; J, insertion of blade; K, posterior end, ventral view (all from Californian specimens).

120°49.91'W, 145 m (3); Sta. PJ-2, 34°55.32'N, 120°49.59'W, 142 m (9); Sta. PJ-3, 34°56.26'N, 120°49.58'W, 138 m (1); Sta. PJ-4, 34°56.26'N, 120°50.24'W, 150 m (2); Sta. PJ-5, 34°55.32'N, 120°50.24'W, 152 m (7); Sta. PJ-6, 34°54.71'N, 120°49.91'W, 148 m (3); Sta. PJ-7, 34°55.79'N, 120°48.60'W, 123 m (6); Sta. PJ-8,

34°56.87'N, 120°49.91'W, 142 m (9); Sta. PJ-10, 34°53.65'N, 120°49.91'W, 147 m (5). Off the Farallon Islands, Sta. 4-7, 37°13.47'N, 123°07.48'W, 1020 m (5); Sta. 4-14, 37°14.75'N, 123°05.82'W, 812 m (2).

Description.—Length to 64 mm, width excluding parapodia to 4 mm, segments at least 140. Holotype 30 mm long, 3 mm wide (excluding parapodia) for 69 setigers; largest specimen from California 25 mm long, 2 mm wide for 107 setigers. Body of holotype robust, of California specimens slender, tapering at both ends, widest in pharyngeal region. Segments distinctly triannulate throughout, short and crowded in anterior half of body (Fig. 4A), somewhat longer in posterior half; with long, slender parapodia. Color in alcohol: tan, sometimes with scattered dark pigmentation on tips of parapodial lobes in posterior segments; dorsal body wall sometimes rugose and slightly darkened in anterior segments of mature specimens.

Prostomium pointed, much longer than wide, with 8 to 10 rings; basal annulus much narrower than peristomium in holotype, only slightly narrower than peristomium in Californian specimens (Fig. 4A). Proboscis densely covered with proboscideal organs of two kinds: most numerous ones tall, slender, at least three times as long as basal width, with terminal pore and smooth surface; second type oval, less than twice as tall as basal width, flat in side view, smooth, scattered among tall ones (Fig. 4B, C). Ailerons with moderately long outer ramus and short inner ramus completely fused to interramal plate (Fig. 4D). Peristomium with two dorsolateral nuchal slits.

Parapodia conspicuous, reaching about one-half body width in pharyngeal region and surpassing body width in posterior segments of smaller specimens; with two slender, pointed, subequal presetal lobes and single, rounded, much shorter postsetal lobe; dorsal cirri small, papilliform, ventral cirri slender, conical, about as long as dorsal presetal lobe (Fig. 4E, F). Setae long, flowing;

notosetae simple capillaries, finely serrated in upper third (Fig. 4G, H); neurosetae compound spinigers, twice as wide as notosetae, with finely serrated blades (Fig. 4I, J).

Posterior end slender, tapering to small, ring-shaped pygidium bearing two slender anal cirri (Fig. 4K).

Remarks.—As part of a recent revision of North Atlantic glycerids, O'Connor (1986) noted that *Glycera capitata* had become a "catch-all" species for forms with single, rounded postsetal lobes and smooth proboscideal organs. He identified at least five different species with these characters and emphasized the taxonomic importance of characters such as the aileron and the number of annuli per segment. The result is a much more precise definition of *G. capitata*, with the consequence that several of the North American specimens assigned to *G. capitata* no longer agree with the species description, including the Californian specimens described here that were originally identified as *G. capitata* (Hyland & Neff 1988, Hyland et al. 1990).

Johnson (1901) described *Glycera nana* as possessing biannulate segments and parapodia with short presetal lobes and ventral cirri, and initially the California specimens described here were thought to belong to an undescribed species because of their triannulate segments and relatively long, conical presetal lobes and ventral cirri. However, the holotype of *G. nana* was found to have triannulate segments and parapodia with long presetal lobes and ventral cirri. Johnson's (1901) description and illustrations are therefore either incorrect, or he treated a mixture of two species, possibly *G. nana* and *G. capitata*. Both species have been seen by the author in several collections from the Puget Sound (Washington) and Kodiak and Prince William Sound (Alaska). Hartman (1950) based her synonymy of those two species on the proportions of parapodial lobes and cirri without considering the number of segmental annuli, but stated that her "northern form" of *G. capitata*, char-

acterized by very short presetal lobes and ventral cirri, should be assigned to *G. nana* should that name prove to remain valid. Her "southern form," characterized by long presetal lobes and ventral cirri, would then represent the Pacific populations of *G. capitata*. The examination of the holotype of *G. nana*, however, suggests that Hartman's "northern form" belongs to *G. capitata*, whereas the "southern form" belongs to *G. nana*.

Another co-occurring species of *Glycera* with only one postsetal lobe, *Glycera brachiopoda* Moore, 1911, is easily distinguished from *G. nana* by the foliaceous, rather than conical, ventral cirri that distinctly extend beyond the postsetal lobe.

Distribution.—Off central California, 123–1020 m, in mixed sand and silt.

Family Nephtyidae Grube, 1850

Genus *Nephtys* Cuvier, 1817

Nephtys signifera, new species

Fig. 5

Nephtys sp. A Lissner et al., 1986:D-10.

Nephtys sp. H. Hyland & Neff, 1988:A-2.

Material examined.—California: Santa Maria Basin, Sta. R-2, 35°05.50'N, 120°49.16'W, 161 m: holotype (USNM 148706) and 1 paratype (USNM 148707), Sta. 13, 35°14.54'N, 120°59.77'W, 197 m: 3 paratypes (SBMNH 35617), Sta. 30, 34°54.19'N, 120°47.07'W, 98 m: 6 paratypes (SBMNH 35618), Sta. PJ-1, 34°55.79'N, 120°49.91'W, 145 m: 1 paratype (LACM-AHF POLY 1615), Sta. PJ-6, 34°54.71'N, 120°49.91'W, 148 m: 1 paratype (LACM-AHF POLY 1616).

Description.—Length to 28 mm, width to 2 mm excluding parapodia, segments to 77. Body unpigmented except for central red eyespot on prostomium and dark brown to black subdermal eyes on setiger 3 in juveniles; setae dusky.

Prostomium quadrangular, about as long as wide when proboscis is retracted; oval and wider than long when proboscis is

everted. Dorsal antennae smallest and well separated from ventral ones (Fig. 5A, B). Dorsolateral edges below ventral antennae staining distinctly in methyl green (Fig. 5B); staining often including outer edges of brain and ventral edge of mouth. Proboscis proximally smooth, with 22 rows of about 5 papillae and a single middorsal papilla; distally surrounded with 20 bifid papillae (Fig. 5C).

First parapodia directed forward, reduced, with large ventral cirri and very long setae projecting well beyond prostomium. Subsequent parapodia in anterior part of body with low, rounded presetal lamellae, deeply incised acicular lobes, and bluntly rounded postacicular lamellae; notopodial postacicular lamellae pointed toward mid-dorsum, neuropodial ones pointed slightly upward. Parapodia of middle and posterior segments similar to anterior parapodia except for slight changes in proportion (Fig. 5D); incision of acicular lobes becoming progressively shallower, acicular lobes turning conical, and postacicular lamellae gradually diminishing in size and reduced in posterior segments. Interramal cirri first present on segment 3, small at first; wide, flattened, straight, (occasionally slightly curved), in posterior segments more slender; heavily ciliated; occupying about one-third to one-half of interramal space. Dorsal cirri small and slender throughout; ventral cirri larger, conical.

Aciculae with curved, dusky tips. Preacicular setae crossbarred, short and stiff (Fig. 5E); postacicular setae of both rami smooth to spinulose and slender in small uppermost and lowermost fascicles, basally spinose in middle fascicles (Fig. 5F, G).

Pygidium with filiform anal cirrus.

Remarks.—*Nephtys signifera* belongs to a small group of closely related, co-occurring species characterized by interramal cirri that start on segment 3 and are in most cases straight and relatively short throughout. This group includes *Nephtys californiensis* Hartman, 1938, *Nephtys ferruginea*

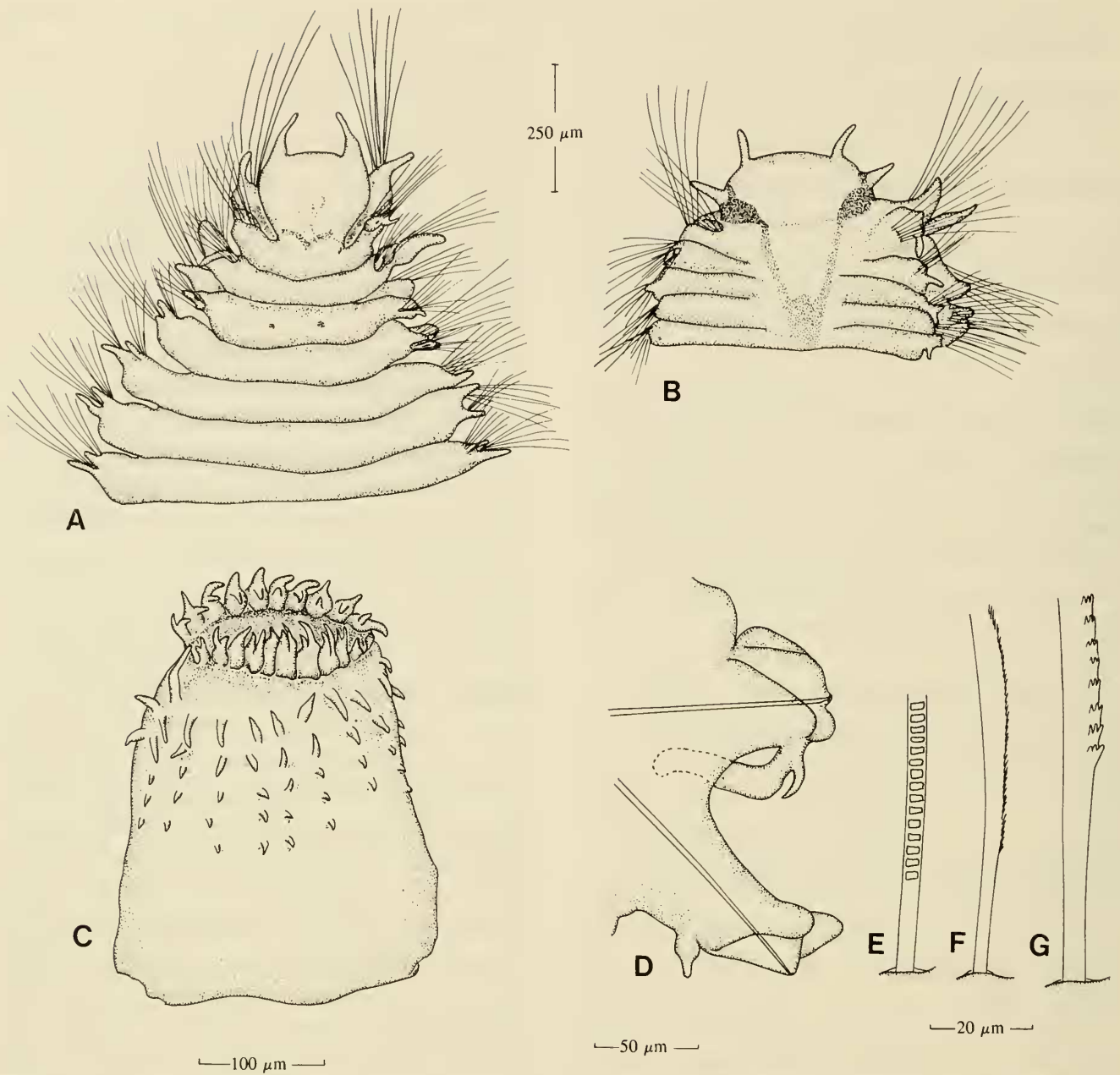


Fig. 5. *Nephtys signifera*: A, anterior end, dorsal view; B, same, showing methyl green staining pattern; C, proboscis, lateral view; D, middle parapodium, anterior view; E, preacicular seta; F, spinulose postacicular seta; G, spinose postacicular seta (A from additional specimen; B, E-G from paratype LACM-AHF POLY 1615; C, D from paratype LACM-AHF POLY 1616).

Hartman, 1940, *Nephtys magellanica* Augener, 1912, and *Nephtys simoni* Perkins, 1980. *Nephtys signifera* differs from these species most conspicuously by the presence of a glandular area along the dorsolateral edges of the prostomium that stains with methyl green. Additionally, all the above mentioned species (with the exception of *N. magellanica*) have 22 rather than 20 distal papillae on the proboscis, and the distribution of spinose, spinulose, and smooth

setae in the postacicular fascicle is distinctly different from that found in *N. signifera*. *N. ferruginea* has spinulose setae in the upper notopodial and lower neuropodial fascicles and spinose setae in the lower notopodial and upper neuropodial fascicles; *N. magellanica* has smooth setae in the upper noto- and neuropodial fascicles, spinose setae in the middle noto- and neuropodial fascicles, and spinulose setae in the lower noto- and neuropodial fascicles; and *N. simoni* has

smooth setae in the lower notopodial and upper neuropodial fascicles and basally spinose setae in the upper notopodial and lower neuropodial fascicles. The postacicular setae of *N. californiensis* are similar to those of *N. signifera* (smooth to spinulose in upper and lower noto- and neuropodial fascicles, spinose in middle noto- and neuropodial fascicles), but the two species differ in the presence of a middorsal proboscideal papilla. *N. magellanica* resembles *N. signifera* most closely; it differs from *N. signifera* in the number of subdistal rows of proboscideal papillae (20 rather than 22). It is possible that some of the specimens that Hartman (1950) assigned to *N. californiensis*, even though they had a middorsal proboscideal papilla, belong to *N. signifera*.

Habitat.—The species is found in sediments with high contents of sand or about equal amounts of sand and silt.

Etymology.—The species name is derived from *signum* (Latin for mark) and *ferre* (Latin for to bear) and refers to the distinct and unusual methyl green staining pattern.

Distribution.—Known only from central California, 110–220 m.

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